

REMARKS

Applicants' representatives thank the Examiner for the courtesy of granting the telephone Interview of March 31, 2010, and the follow-up phone discussion on April 1, 2010, indicating that "from a closed condition to an open condition" might be a more appropriate recitation for describing repetition of (2) to (4) for the proposed amendment to claim 3. See the Statement of Substance of Interview filed herewith.

Claim 3 has been amended to recite that "(1) irradiating a hydrophilization portion with light to decrease a contact angle of water of the surface thereof, wherein at least a part of a surface of the microchannel is the hydrophilization portion comprised of a substance being capable of decreasing a contact angle of water by irradiation of light." Support for this amendment is found at, for example, original claims 2, 3 and 5 of the specification.

Claim 3 has also been amended to recite "repeating said (2) to (4) to switch alternately a passage of the fluid in the microchannel from a closed condition to an open condition." Support for this amendment is found at, for example, original claims 2, 3, and 5; page 6, lines 12-19; page 10, lines 1-11; page 16, lines 1-19; and Figures 1, 3, and 5 of the present specification.

Upon entry of the above amendment, claims 3, 8, 11-14, 16 and 27-31 will be pending in the application.

Claims 3-5, 8, 11-14, 16, 27-29 and 31 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over JP 2003-047832 ("JP '832") in view of "Hayakawa" (U.S. 2002/0016250) and "Niino" (DE 19708373). The grounds for rejection remain the same as set forth in the previous Office Action.

Claim 30 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over JP '832 in view of Hayakawa and Niino, further in view of "Sullivan" (U.S. Patent 5,821,680).

The Examiner acknowledges Applicants' argument that the rejection should be withdrawn because none of the cited references, alone or in combination thereof, teaches or suggests a change (switching) in fluid flow by applying an energy (i.e., irradiation). See the Amendment filed September 9, 2009. In the Response to Arguments at page 7 of the Office Action, the Examiner disagrees and takes the position that Hayakawa "anticipates" the claimed method of controlling the flow of a fluid in a microchannel, by creating hydrophobic and hydrophilic portions, thereby controlling the flow of water flowing in the channel. The Examiner is further of the view that the "change or switching" urged by Applicants as distinguishing over the prior art is an *unclaimed* step, because the invention as claimed is said to not require any dynamic switching.

Applicants respectfully submit that present claim 3 and claims dependent thereon are non-obvious, because no combination of the cited references teaches or suggests each and every limitation of present claim 3.

For example, present claim 3 recites "repeating said (2) to (4) to switch alternately a passage of the fluid in the microchannel from a closed condition to an open condition." Applicants respectfully submit that the cited references do not teach or suggest these recitations.

Therefore, claim 3 and claims dependent thereon are non-obvious over the cited references. Reconsideration and withdrawal of the § 103 obviousness rejections are respectfully requested.

Claims 3-5, 8, 11-13, 16, and 27-31 stand provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 3, 4, 15, and 36-47 of copending Application No. 10/573,967.

Applicants respectfully submit that present claim 3 and claims dependent thereon are non-obvious over the claims of copending Application No. 10,573,967, because the claims of the copending application do not teach or suggest all of the recitations of the present claim 3.

For example, present claim 3 recites a “(1) irradiating a hydrophilization portion with light to decrease a contact angle of water of the surface thereof, wherein at least a part of a surface of the microchannel is the hydrophilization portion comprised of a substance being capable of decreasing a contact angle of water by irradiation of light.” The claims of the copending application do not teach or suggest all of the recitations of the presently claimed invention.

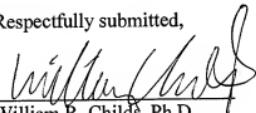
For instance, the claims of copending Application No. 10,573,967 do not teach or suggest a “microchannel,” a hydrophilization portion in a microchannel, a method for controlling the passage of fluid in a microchannel, or alternating passage of a fluid in a microchannel by repeating steps (2) to (4).

Therefore, Applicants respectfully submit that the claims of the present application are non-obvious over the claims of copending Application No. 10,573,967. Reconsideration and withdrawal of the provisional nonstatutory obviousness-type double patenting rejection are respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



William R. Childs, Ph.D.
Registration No. 62,316

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: May 6, 2010